

NOTES ON SOME AMERICAN NOCTUIDS IN THE
BRITISH MUSEUM.

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In Vol. XII of the Journal N. Y. Ent. Soc., pp. 93-104, 1904, I published a review of Vol. IV of Catalogue of Phalænæ, etc., then recently issued. This volume, the first of the series on the Noctuids, by Sir George F. Hampson, contained some changes in the accepted synonymy as based on previous studies and comparisons. I was not quite ready to accept all of these references of species nor the use of genera in the way Hampson typified them. As to the genera the difference is due to the fundamental rule accepted for the determination of generic types and agreement cannot be reached until a uniform basis is agreed upon by zoölogists. As to the species it was matter for further study of the original types. In September, 1906, it was my good fortune to be able to spend some time in London; for a week I went over the Noctuid collection, and Sir George was good enough to look over with me all those species about which our conclusions were at variance. Taking up the species in the order of my notes, the following memoranda were made.

Pyrocleptria californica Hamps. This is *Annaphila aurantiaca* Hy. Edw. That the species was not an *Annaphila* I pointed out in my Catalogue of 1893 and also stated that it was an Heliothid for which I had no satisfactory place. In 1895 Mr. Grote created his genus *Incita* to receive it; but evidently without specimens and without recognizable description. At any rate *aurantiaca* is type of *Incita* Grt., and so the species must be known, with *californica* Hamps., as synonym. The type of *Pyrocleptria* is *cora* Gn., and if that species is really congeneric with *aurantiaca* the name *Pyrocleptria* must sink as a synonym of *Incita*.

Heliothis lupatus Grt. This is the *Xestia chloropha* of Hubner without very much doubt, and it disposes of another of those miserable species that have remained so long unidentified in our catalogues. Hampson first suggested this synonymy in a letter and after comparing my only specimen with the figure, I have no doubt that he is correct. I am not aware that he has published the reference, but the credit for it belongs to him at any rate. The species is not at all

common in my experience and has been in our lists as an *Orthosia*. It must in future be *Heliothis chloropha* Hbn., with *lupatus* Grt., as a synonym.

Lygranthœcia tuberculum Hbn. = *dorsilutea* Wlk. There seems to be little doubt of the correctness of this reference; but I am not at all sure that there are not two closely allied species involved. Both names are based on eastern specimens and I have an example from Texas that belongs to the same series. Some Colorado examples, however, seem to suggest another species and more material is needed before we can be sure on this point.

Lygranthœcia constricta Hy. Edw. The position of this species I have discussed in this Journal, XIV, 24. It must, in future, be listed as an aberration of *marginata*.

Porosagrotis patula Wlk. = *septentrionalis* Moeschl. This is as I have made it out; but I made both names to = *fusca* Bdv., and that proves to be an error. The suggestion that his species was identical with *fusca* was Moeschler's originally, in 1870, and I saw no reason to doubt it. The reference of *patula* to *septentrionalis* was made by me. Hampson now makes *fusca* Bdv., the same as *Euxoa cinerea* Schiff., a species which is not autoptically known to me.

Euxoa incubita Sm., is = *septentrionalis* Wlk., as stated by Hampson. As I pointed out in 1904 the species allied to *messoria* had not been distinguished in 1893, and when I differentiated them in 1900 I did not have duplicates of the form actually described by Walker.

Euxoa insulsa Wlk.: this species I identified with the *campestris-decolor* series in 1893, and cited a long series of synonyms. Hampson referred the species to *messoria* in his catalogue and I took the liberty of doubting the reference. Reëxamination of the type proves that my original reference was correct and that *insulsa* has nothing to do with *messoria*. The specimen is obscurely marked and to one not familiar with the wide range of variation found in this particular species the error was a natural one. There is perhaps no more widespread, common and variable form than this and of the series of 35 which I have in my cabinet, no two are quite alike. In a series of probably 100 duplicates I have every type from almost immaculate to brilliantly contrasting well written examples. The black filling in the cell in this species is a variable quantity and less constant than in any other species of the series.

Euxoa expulsa Wlk., I made out to be the same as *insulsa*, and in that Hampson agreed with me, referring both to *messoria*. I have seen no reason to change my opinion on their identity and of course this species follows *insulsa* in its removal from the list of *messoria* synonyms. All the other names which appear under *messoria* in the British Museum catalogue are already properly referred in my own work.

Euxoa choris Harv. = *cogitans* Sm. There are two allied yet distinct species in my collection, one of which I have under the name *choris* the other as my *cogitans*. In the British Museum only one of these species is represented. My identification of *choris* was from a colored drawing of the type made many years ago for Dr. C. V. Riley. It will be necessary, before the relation of these two names can be settled, to send over examples of both of the species that I have, for direct comparison with the Harvey type. At present my material is not sufficient to permit me to do this; but I hope to do so in the near future.

Agrotis insignata Wlk. Walker described two species under that name on two different pages of the same volume. The first of these I referred as a synonym of *insulsa* and the second, renamed *illata* by Walker in a subsequent volume, I referred to *ochrogaster*. Sir George Hampson refers the first name to *Euxoa*, with *pleuritica* Grt., as a synonym, and the second to *tessellata* Harr. There is no doubt that I mixed the two *insignata* in my original notes and that the first described form which I referred to *insulsa* is the one that should have been referred to *ochrogaster*. The type is a very faded uniformly colored example nearly like the *cinereomaculata* of Morrison and has nothing to do with *pleuritica*. It is a form of *ochrogaster* without reasonable doubt. On the other hand that *insignata* which I referred to *insulsa* is correctly placed by Hampson with *tessellata* and to that extent my catalogue must be corrected. The synonymy will stand, then, *Agrotis insignata* Wlk. = *Euxoa ochrogaster* Gn.: *Agrotis illata* Wlk. = *insignata* Wlk., = *E. tessellata* Harr.

Euxoa tristicula Morr. = *silens* Grt. This reference appears in my latest check list, but the synonymy was developed in the course of a correspondence between Sir George Hampson and the Brooklyn Institute, and both parties notified me of the conclusion reached. I have since verified it, by an examination of Mr. Morrison's type which is less distinctly marked than usual and does not at first suggest Mr. Grote's species. No one who compared Hampson's Fig. 20,

Pl. LXVI of *silens*, with Fig. 13, Pl. LXIX of *tristicula* would ever dream that they could possibly be meant for one species. The latter figure is quite characteristic; the former is not in the least so.

Euxoa decolor, Morr., with *campestris* Grt., as a synonym stands as a good species in Hampson's work. Both names refer to one species surely enough, but it is the same species that Walker previously named *insulsa* as I have already shown, and therefore these names must be replaced where I had them in my catalogue.

Mamestra declarata Wlk., was referred by me to *insulsa*, and by Hampson to *tessellata*. A reëxamination of the type confirms my original conclusion and the reference to *insulsa* stands. *Tessellata* and *insulsa* are both variable species and run to local forms. It is quite possible to mix up a box of the two species and make them appear as extreme variations of one thing: yet when one has handled hundreds of examples from many localities, the two species in all their varieties show a characteristic appearance that enables their recognition at a glance. It is simply impossible for any student who has not become familiar with this specific individuality from long experience to place every example as it comes to him. And even in my own case, though I have handled the species now for nearly thirty years, I sometimes send back single examples without names, requesting additional material before final determination.

Agrotis perlentans Wlk. This is referred to *tessellata* and apparently with justice. It is one of those species that Mr. Butler could not find for me in 1891. As for the rest of the names, they stand in Hampson's work as they do in my own.

Euxoa verticalis Grt. This was first referred by me as a variety of *insulsa*, and is correctly restored to specific rank by Hampson. The range of variation while it approaches, does not include this form.

Agrotis spectanda Smith. Hampson refers this as a synonym of *verticalis*; but incorrectly so. There is no specimen of *spectanda* in the British Museum and the author never actually saw my species, the reference being made on the *dixit* of a collector who has seen both species in the Neumoegen collection.

I have reëxamined the species of *Chorizagrotis* and am confirmed in my separation of the species. Hampson makes *introferens* Grt., and *soror* Smith, as synonyms of *auxiliaris* Grt. *Soror* Smith is not in the British Museum collection at all, and is not a common species in my experience. In *auxiliaris* the female is quite different from the

male and very like the male *introferens* ; so unless the sexes are first carefully separated out and associated, it is quite easy to range the two species into a continuous series. As between the males I have never been for a moment in doubt as to which was *auxiliaris* and which was *introferens*. The female of the latter species, by the bye, is more like the male *agrestis* than it is like its own mate.

Rhizagrotis cloanthoides Grt., appears in Hampson's work as a synonym of *albalis* Grt., in the bibliography ; but is referred to in the description as, "Ab. 1. *cloanthoides* : whiter." In my original work I placed them in this same way, before seeing the type of *albalis* in the British Museum. After that I referred the two as good varieties at least in my catalogue and, yet later, in my check list placed them as good species. The latter conclusion I still adhere to. The type of *cloanthoides* is in the old Graef collection and I have specimens compared with it. I have also a series of *albalis* which agree with Hampson's figure and description and with Mr. Grote's determination of his species in the U. S. N. M. The two differ not only in maculation but in the armature of the anterior legs, *albalis* having a series of long, curved, claw-like spines on the outer side of the tarsal joints which are absent or much reduced in *cloanthoides*. There is also a difference in the armature of the mid-tibia ; but my material in *cloanthoides* is too defective to make it possible to determine details now.

Taken as a whole the number of points in which the synonymy in the genus *Euxoa* has been changed from my original determinations is remarkably small. Some of the changes suggested by Hampson are correct and these are all noted here. Others of them are not well founded, and so far as our differences related to Walker's species, I believe Sir George has agreed that he was in error. As to those differences where lack of material in the British Museum prevented direct or sufficient comparisons, they can be easily settled later, when material becomes more abundant, and they affect no names on the "unknown" list.

Feltia evanidalis Grt., is the only species (except *olivia*) of the genus not represented in my collection and I have been trying to identify it with west coast examples of *subgothica* with contrasting yellow reniform. Hampson, however, places it next to my *pectinicornis* and that is correct. It really looks like a faded, yellowish, washed-out example of that species. It is passing strange that none of the Californian collectors have again taken this species.

The most aggravating change made in the synonymy by Hampson relates to *Feltia subgothica*, *tricosa* and *herilis*, and the pity of it is that he is correct and must be followed. In the Canadian Entomologist, XXVII, 301, 1895, Slingerland apparently proved to demonstration from published data that Haworth's name *subgothica* could apply to no other form than that afterward named *ducens* by Walker. To be sure Tutt in the same journal, XXVIII, 17, 1896, tried to prove that Haworth really figured only a variety of a common European species; but his argument was not convincing and I believed that Slingerland was right and followed him. Everybody assumed that Haworth's type no longer existed and therein we were in error, for it is now in the British Museum with a clear record as to its identity and it bears out Hampson's references to the full. What we have been calling *subgothica* Haw., must now be called *ducens*, Wlk., and were this all the change would be easy; but we must now use the name *subgothica* Haw., to replace *jaculifera* Gn., which will cause trouble in collections and to collectors. Fortunately *herilis* Grt., remains, and the possibility of change is now exhausted unless some one attempts to argue that, Guenée having included what Grote afterward named *herilis*, as a form of his *jaculifera*, that name must stand for the distinct form even if one part of it is really a synonym of a previously described name.

Agrotis docilis Grt. Hampson refers to this my *ingeniculata*, and I had been previously advised to the same effect and had accepted the reference, as appears in my check list of 1903, prepared before Hampson's volume was published. In my catalogue of 1893 I referred *docilis* to *occulta*, and now, after a reëxamination of the type, I am not at all ashamed of the reference. The type of *docilis* is really like a gray *occulta*. With a greater knowledge of the latter species I am convinced that *docilis* does not come within its range of variation and to that extent I was wrong. But the type of *docilis* is not my *ingeniculata*! There is another species involved here, which will be referred to under *Lycophotia astricta* Morr.

I noted in my previous paper that *Agrotis hospitalis* Grt., was cited as a synonym to *Agrotis brunnea* Schiff.; but no American localities are given in the "Habitat." There are no American specimens in the British Museum collection and Hampson informs me that his reference was not based upon direct comparisons. I have now seen a number of examples of this species from well separated locali-

ties taken by different collectors; so that there is no doubt that we have a native, though very rare species to deal with. There is no doubt either that the resemblance to the European *brunnea* is well-marked and very close; but I am by no means certain that we are justified in referring the name to the synonymy until more careful and thorough comparisons, extending to an examination of the ♂ genitalia shall have been made.

Agrotis eriensis Grt. Hampson is correct in referring this to *jucunda* instead of *phyllophora* where I placed it. The specimen is unusually large, lacks all black and has yellow costal mottlings.

Agrotis esurialis Grt. This is a good species as Hampson makes it, rather than a race of *jucunda* as I believed in 1891. The species in this group of what I call *Noctua* are much more numerous and more closely allied than I believed fifteen years ago, and this Pacific Coast form is entitled to stand. I have nothing in my collection that is quite like the type; but the species has a *Pachnobia*-like appearance that is characteristic of a series that I have from Oregon and I believe these to come within the range of variation.

Noctua patefacta Smith. This is without much doubt *Agrotis juncta* Grt., although Hampson has kept them as distinct. I have had a figure of *juncta* for some time, marked as a faded *patefacta* in my collection, and direct comparison confirms my belief. My name must be cited in the synonymy in future.

Agrotis subporphyrea Wlk. Hampson places this species with *piscipellis*, *atrifrons* and *cinereicollis*, rather than with the species of *Rhynchagrotis* where I was inclined to seek its allies. There are two female examples in the collection and I cannot remember even having seen anything to match them among American material. The figure on Pl. LXXI of the "Catalogue" is good as to form and color; but the lines are much more prominent than in the original.

The species that we have heretofore known as *Pachnobia carnea* Thunb., must hereafter be cited as *P. cinerea* Stgr. At the time of my previous visit to the Museum there was a mixture of species under the name *carnea*, and I noted in my catalogue that I did not autoptically know Thunberg's species. I followed in the identification Mr. Grote, and he, I believe, relied upon Staudinger, Speyer, Moeschler and Zeller. Hampson now places *carnea* Thunb., as a synonym of *brunnea* Schiff., and raises what Staudinger named as an aberration to specific rank. As it stands now the American form is not circumpolar and is different from anything found in the European fauna.

Noctua rava H.-Sch., stands in our catalogues and lists with *umbrata* Pack., as a synonym. Hampson puts both names under *Episilia quadrangula* Zett. In the British Museum collection there are five examples: one from Labrador, four from Iceland, and the first specimen appears to me to be specifically distinct from the other four. I have four examples from Labrador, compared with, and very similar to Dr. Packard's type, so that I am sure of that species. The determination that *umbratus* was identical with *rava* was made by me in 1890, partly from Herrich-Schaeffer's figure, partly from specimens sent me as *rava* by Moeschler. I am not in position to verify my original determination at present, and am not familiar with the true *quadrangula* of Zetterstedt; but I feel very sure that there are two species included in the three names *quadrangula*, *rava*, and *umbratus*, and I am quite ready to believe that the original error was mine, in making *umbratus* Pack. the same as *rava* H. S. Until some one is in position to settle the question from knowledge of all three species, I prefer to leave matters as I have them now.

Lycophotia radiola Hampsn., replaces *Setagrotis radiatus* Sm., because two years previous to my description Schaus had described *Praina radiata*. According to the basis adopted by Hampson, Mr. Schaus's species and my own are generically the same, and the new name was a necessity. But I do not believe that the genera are identical. I will admit that my *Setagrotis* is the same as *Lycophotia* Hbn., if anything is to be gained by that; but *Praina* Schaus is certainly not, from my point of view, the same as *Setagrotis*; therefore, for the present I will continue to use the name as I wrote it, admitting, if you please, that I would not have used the name had I known of its earlier occurrence in an allied genus.

Lycophotia præfixa Morr., was described from the Julius Meyer collection and I have a photograph of the type. After examining the type of *Agrotis gracilis* Grt., and concluding it distinct from my *ingeniculata*, it occurred to me to compare it with the Morrison name and its description and I believe that the two refer to the one species. To me the resemblance of *docilis* to *occulta* seemed obvious from the first, and a reëxamination, while it showed that the two were not identical, as I had at first believed, yet confirmed my opinion as to their close relationship. The habitat of *docilis* and *præfixa* is the same, and while I am not ready to make the reference definitely, I believe that eventually it will be found that one species only is referred to.

Peridroma infecta Ochs., will probably have to replace *incivis* Gn., as Hampson writes. The British Museum series is a long one, covering a good range of both North and South American localities, and while the extremes look as distinct to me as ever, the intermediate range appears to fill in the gap completely.

Noctua lubricans Gn. To this specimen Hampson cites *illapsa* and *associans* Wlk., and *beata* Grote. *Associans* is a pure synonym of *lubricans*; *associans* is ranked as a Canadian and eastern form, and *beata* as a western form. This is right, in a way: *lubricans* and *associans* refer to the same form and so does *spretata* Smith I am afraid, although my specimens are much grayer and more uniform than the types of the older species. The species that is most commonly marked *lubricans* in our collections is not this Floridian form at all; but is the form to which the name *illapsa* more specifically applies. It ranges in ground color from gray to reddish and varies greatly in other directions; but there is no specific connection with the type which I separated as *spretata* and to which, apparently, the name *lubricans* really belongs. *Beata* Grt., is also a good species I believe.

Anomogyna lætabilis Zett., is recorded from Labrador by Hampson, on what authority I do not know. The species is not represented in the British Museum by American examples, and I have not seen it so as to recognize it in any of our own collections. Nevertheless the thing is not impossible, and perhaps the name had better be added to our lists.

Abagrotis ornata Sm., is placed with *A. erratica* in the collection and apparently with justice. Dr. Dyar collected this species in large numbers at Kaslo, and it appears that while my *erratica* happened to be the almost immaculate form, the specimens I made types of *ornata* were sharply and clearly marked, with all the normal maculation well written.

The first volume of the series ends with *Protagrotis viralis*, a species which I referred as identical with *Luperina passer* from my previous examination. In the determination that there is a single spine between the two pairs of spurs on the hind tibia, Hampson is undoubtedly correct, and it is equally certain that in my long series of *passer* I have no example that shows this peculiarity. Hence *viralis* in spite of its similarity to a form of *passer*, must be restored to rank as a good species.

Volume V of the Catalogue, the second of the Noctuid series, was

published in 1905, and is devoted to the "Hadeninæ" or hairy-eyed genera. I have already called attention to the fact that this term will not at once convey its intended meaning to American students who have been in the habit of associating the term *Hadena* with forms having naked or "lashed" eyes.

The first genus with American species is *Barathra* Hbn., with *brassicæ* of Europe as the type and our two American species as associates. Hampson, however, makes *occidentæ* Grt., a synonym of *configurata* Wlk., and in this he is correct. I have already noted the fact that the *Mamestra configurata* Druce, Biol. Cent. Am., Het. 1, pl. 26, f. 20, was probably the same as Mr. Grote's species; but I was not previously certain that it was really the same as Walker's species. The name must now stand as *B. configurata* Wlk., with *occidentæ* Grote as synonym.

Mamestra chartaria Grote and *M. florida* Sm., are separated and associated with two Asiatic species under the generic term *Discestra* Hampn., based upon a frontal modification which I had overlooked in our species. *Chartaria* is the type of the genus which is a good one.

Mamestra yakima, disguised as *yacima* is the only one of our species referred to *Craterestra* Hampson. The genus is described as having "frons with truncate, conical, corneous prominence with corneous plate below it"; etc. This frontal structure I am unable to demonstrate in any of my examples. The front is somewhat roughened, but there is no prominence and no plate. The genus seems to be a good one, but I doubt whether our species is correctly placed in it.

Scotogramma Smith is considerably extended, enlarged in scope, and altogether changed from its significance. *Trichopolia ptilodonta* Grt., is referred to it, with doubtful justice—at all events it would not have occurred to me to place it there. So of *Mamestra trifolii* which I could not separate from the typical genus in my revision of it. *Mamestra hadeniformis* which I placed next to *grandis*, is referred to *Scotogramma* with a query, the species being known only from a figure. I am not quite ready to accept the correctness of the reference without a reëxamination of the type which is not now in my possession.

Mamestra impolita Morr., is also made a *Scotogramma*, and that is probably correct. *Mamestra defessa*, *repentina* and *orida* are all

new additions, while of my original species, only *submarina* remains. *Scotogramma* as I intended and understood it in 1889 is altogether lost and a totally different conception of the genus is presented. In fact as it stands now the genus is not mine at all.

Anarta Ochs., so far as it refers to our species also presents a changed appearance. *A. staudingeri*, var. *mæschleri* Staud., is an addition from Labrador, and is unfamiliar to me. *Anarta lanuginosa* Sm., from Alaska is referred as a synonym to *A. richardsoni* Curt.

Anarta schœnherrii Zett., drops out of the genus, and so does *quieta* Hbn. According to Hampson the two are one, belong to the genus *Agrotiphila* and there are no American records. *Anarta leucocycla* Staud., which its describer referred as a synonym of *schœnherrii* is recognized as a good species and Greenland is the only locality cited. It is a question, therefore, whether any of these names are properly in our catalogues.

Anarta acadensis Beth., is definitely referred to *A. myrtilli* Linn., as a synonym, and that seems probably right. *Anarta phæa* Hampsn., is a new species from Arctic America, and is a very dull, obscurely marked form near *impingens*, which remains as it is in our catalogues.

Anarta secedens Wlk., is removed to *Polia*, while *A. melaleuca*, *lapponica*, *kelloggi*, *zetterstedtii* and *funebria* are not hairy eyed species at all and reappear in the next volume under *Symphistis*.

The genus *Lasiestra* Hampson is really *Scotogramma* as I meant it to be. It contains just those species that I considered typical of my genus, and is, in effect, the assemblage that I held together under that name in my revision of some Tæniocampid genera in 1889. My designation of *submarina* as type of the genus of course fixes it; but I am not ready to consider all those species classed with it by Hampson as really congeneric.

Scotogramma luteola Smith, is made a synonym of *S. phoca* Moesch., and *promulsa* Morr., which I made a synonym of *phoca* in 1889 is restored as a good species, my *infuscata* being cited as a synonym. In so far as *promulsa* is held as a good species, distinct from *phoca*, I agree: on all other points I dissent most strongly. Hampson's figure of *promulsa* Pl. LXXIX, represents my *infuscata* fairly well; but it does not represent Morrison's *promulsa*. I know that species well from actual examination of the type and it is simply impossible to confuse the two. Both species are before me for direct comparison. As to the identity of *luteola* with *phoca* I cannot speak with equal positive-

ness because I have no Labrador examples of *phoca* at hand now and cannot compare the photograph that I had of the type; but I am by no means agreed that the two are even probably the same.

Lasionycta Hampson, differs from *Lasiestra* in having the thorax clothed with hair and hair-like scales, while in the latter genus the clothing is entirely hairy. This difference I considered as authorizing only groups in my genus *Scotogramma*, and several of my species of that genus find a place here: *inconcinna*, *conjugata*, *subfuscula* and *sedilis*. These are all congeneric; but with them are associated *Mamestra rainierii* and *arietis* and *Xylomiges ochracea*. The first may belong here; I have no specimens for comparison, and had only a ♀ for description: the last I would not have thought of putting here, though it fits better, perhaps, than in *Xylomiges*. The change in the synonymy of what we have known as *insolens*, is unexpected. Mr. Grote himself said that his *arietis* was the ♂ of his *insolens*, and that was never before doubted. That Mr. Morrison's species *carina* was the same as *insolens* was pretty general knowledge before I made the reference. Hampson now claims that Grote really had two good species before him and places *arietis* in *Lasionycta* while *insolens* goes into *Polia*. He was good enough to send me a ♂ specimen of *arietis*, and there is no doubt but that it is different from the single ♂ that I had under *insolens*. Unfortunately, material in this species has always been very scarce with me, hence I can say nothing of the generic separation. The two species certainly look very similar.

And now comes a list of over 200 species referred to *Polia* under which 16 generic names are cited as synonyms. The genus includes a large proportion of the species which stand as *Mamestra* in our lists and, in general, the synonymy is as in these lists. *Mamestra crydina* Dyar, is cited as a synonym to *M. purpurissata* Grt., but that is an error. Dr. Dyar described his form as a variety only, and as Hampson recognizes no varieties, the citation was justified under his rules. But *crydina* is really a very good species, abundantly distinct from *purpurissata* in structural and ornamental characters. I had an odd specimen separated out for a long time before Dyar described, and the recent receipt of additional, good examples, fully justifies the separation. It may be added that I saw no examples of *crydina* in the British Museum collection, so that Sir George had no opportunity to judge of the standing of the name.

Mamestra fusculeta Smith is placed as a synonym of *crotchi* Grt.

in the bibliography, but is marked as "Ab. 1. *fusculeta* : darker." The term aberration seems here and in general to be used as meaning a well-marked form or race, and I am inclined to believe that a race is what we have to deal with here.

Celæna perta Druce, is cited to *Mamestra lepidula* Sm., and correctly. The type of *perta* is a small very intensely marked example and at first sight appears distinct.

Polia canities Hampsn., is a new species based on one ♂ from "California." It is a small, inconspicuous form, creamy gray in color without contrasts, and resembles *arietis* Grt., in habitus.

Scotogramma discolor Sm., is referred here, and I am not sure that this is correct. There is a single ♂ from Colorado in the collection and I am decidedly doubtful of the correctness of the specific identification. I could not verify it and have no material of my own to send in for comparison, so this form will have to remain a little doubtful for the present.

Tæniocampa columbia Sm., is placed between *Polia determinata* and *meditata*, and that is correct. My original material was imperfect and induced the erroneous generic reference.

Polia rubrifusa Hampson, is a new species from New Mexico, Beulah 1 ♂. I have a ♀ from the same locality that I had placed with *determinata*, as an unusually well marked specimen. Its specific separation is, however, warranted I think.

Scotogramma umbrosa Sm., follows immediately, and again I dissent. The species is a close ally of *sedilis* as I have it in my collection, and should be associated with that species. There are no specimens in the British Museum.

Mamestra negussa Sm., is cited to *M. plicata* Sm., to which I do not agree. I have reexamined the two forms, both of which are represented in my collection, and while the two are undoubtedly close allies, yet the Colorado form is so much larger and differently marked that I do not believe them the same.

Polia insolens Grt., with *earina* Morr., as a synonym comes in here and this species has been already referred to.

Mamestra canadensis Sm., is cited as a synonym of *Polia nevadæ* Grt., but I think incorrectly so. Mr. Grote's species is a much brighter, more contrasting, broader-winged form than my own, while the type of maculation is undoubtedly very similar. It is not impossible that the two may be races only, and unfortunately my supply of what I

consider the true *nevadae* is extremely limited. The form that I have as *canadensis* is less rare.

Polia glaucopis Hampson, is a new species from Vancouver and resembles an intensified, brilliant *lubens*. I have no material from that locality in that species; but I do not doubt the distinctness of the new form.

And now we come again to *Mamestra cristifera* Wlk., and *M. lubens* Grt. On the occasion of my first visit to the British Museum I compared the types of the two forms and concluded that Mr. Butler had been correct in placing them together. Mr. Grote never admitted the correctness of this reference, and on my second visit, in 1900 I made another comparison in the light of greater experience. At that time I noted that "Walker's type from Hudson's Bay has none of the bright coloring of *lubens*; is dull ashen, verging to blackish in the dark spaces: is a smaller species and nearer to *invalida* Sm." Hampson refers *lubens* to *cristifera*, but makes it "Ab. 1." and points out the differences noted by me, except that he differentiates *lubens* from *cristifera* instead of the reverse, as I had it. On this third visit I again compared the types and other material and am convinced now of the distinctness of the two forms. I have no *cristifera* in my collection, but I do have a very fair series of *lubens* none of which approach the Walker type.

Mamestra larissa Sm., is cited as a synonym of *anguina* Grt. There is only one example of *anguina*, and that does not seem out of place in the series of ten *larissa*. I have reexamined my series of both species and feel very sure that with more *anguina* at hand Sir George will be ready to admit the distinctness of my species.

The series of specimens under the names *vicina* and *pensilis*, indicates that a revision of these forms is needed, with long suites from various localities for comparison.

Scotogramma densa Sm., with *megæra* Sm., as a synonym comes into this series. I must confess I cannot see why this association is as good as with *submarina* to which *densa* is much more closely allied than it is to *megæra*. Dr. Dyar in his catalogue makes the latter a variety of *densa*; but the two are different in size, in wing form, in ground color, and in the color of the secondaries in both sexes. My material in these species is sufficiently good to demonstrate their distinctness.

Teniocampa palilis Harv., is brought into this association and with

justice. It is much better placed here than where I had left it in the Tæniocampid series.

Polia stenotis Hampson is a new species from California out of the Walsingham material. Sir George was good enough to send me an example out of the type series and soon afterward I received a small series of examples from Stockton, Utah, dated October 2 and 3. The species is a very distinct one.

Polia stricta Wlk., receives in addition to *cinnabarina* Grt., and *ferrea* Grt., my species *circumcincta* as a synonym. Dr. Dyar had just previously placed the same name into the synonymy of *olivacea* and as both these authorities agree that *stricta* and *olivacea* are distinct, one of them must be wrong in referring *circumcincta*. Under the circumstances I prefer to hold my species as distinct, first because I believe it to be so, and second because I do not believe either of the two gentlemen have the true *circumcincta*. The type is in my own collection; the species is certainly not in the British Museum and as I described from a single pair out of the Edwards collection, retaining the male and returning the female, the other type should be in the American Museum of Natural History. I would further suggest that I figured the male genitalia of all the forms and while these might authorize Hampson's reference, they never could by any possibility authorize Dyar's.

Under *Polia olivacea* Morr., all the forms described by me in 1901 appear as synonyms, and in addition *M. comis* Grt., and *Celæna hamara* Druce. As to the latter I have no opinion, since I did not compare the type. As to the others I am quite willing to let them take their chance of a future existence; some of them are races almost surely; others, including *comis*, are very good species.

Polia secedens Wlk., is the species that we have so long had as *Anarta secedens* and which was originally described as a *Plusia*. The yellow secondaries and general habitus go far toward justifying the original reference and the species is another of those Hudson's Bay forms that are so generally lacking in our American collections.

The genus *Hadena* Schrank, as used by Hampson, contains only one American species, *procinctus* Grt., which stands in our lists as *Dargida* Wlk. The Mexican *graminivora* is very similar in appearance, as noted in my catalogue, but abundantly distinct.

Tholera Hbn., replaces *Neuronina* Hbn., and my *americana* remains our sole representative.

Epia Hbn., is used for a small series of species in which there is a frontal modification and an armature on the outer side of basal joints of anterior tarsi. Our species are *capsularis* Grt., *minorata* Sm., *ectrapela* Sm., and *circumvadis* Sm.

*Cardepi*a Hampson is separated from *Trichoclea* Grt., by a small modification of the frontal structure and our *Trichoclea nova* is one of the two species referred to it. I should hardly have considered the differences found on comparing the descriptions as of generic value.

Trichoclea Grt., receives quite a number of new species including *Mamestra u-scripta* Sm., *artesta* Sm., and *fusculenta* Sm. The addition of the former destroys the similarity of appearance and habitus which has been rather a characteristic of this genus heretofore; but so far as I have verified them the references are all warranted by the structure.

Chabuata Wlk., with *ampla* Wlk., as type replaces *Tricholita* Grt., with *signata* Wlk., as type. I do not consider the union of these genera justified at all. *Tricholita* Grt., has antennæ pectinated in both sexes, *Chabuata (ampla)* has them simple in both sexes the joints in the male being ciliated only. It is of course a question as to what are generic characters and in this case I will certainly continue to use *Tricholita* for the species heretofore so listed in our fauna.

Leucania velutina Sm., is the solitary representative of *Chabuata* typical series; but I am not familiar enough with the surrounding species to attempt to rescue it from its strange environment. Where I placed it, in *Leucania*, it was quite as much at odds with its companions.

Hyssia Gn., receives *Ulolonche* Sm., as a synonym; but my conception of *Ulolonche* is utterly unlike Hampson's conception of *Hyssia* Gn., for there are some species of *Mamestra*, like *senatoria* and *gussata* placed here which I would never think of associating with my *Ulolonche*. I must confess that a classification which separates into different genera such closely allied forms as *Mamestra gussata* and *negussa* does not appeal to me with convincing force.

Placed in parallel columns we have the generic differences

Polia.

Proboscis fully developed;
palpi obliquely upturned, the second joint fringed with long hair in front, the third short;

Hyssia.

Proboscis fully developed;
palpi upturned, the second joint fringed with hair in front, the third short with a small tuft of hair in front;

frons smooth ;	frons smooth ;
eyes large, rounded ;	eyes large, rounded ;
head and thorax clothed chiefly with scales, the pro- and meta- thorax with crests ;	head and thorax roughly clothed with scales mixed with some hair, the pro- and metathorax with spreading crests ;
pectus and tibiæ clothed with long hair ;	tibiæ fringed with long hair ;
abdomen with dorsal series of crests.	abdomen with dorsal crest on first segment, some rough hair at base and lateral tufts of hair.
Fore wing with veins 3 and 5 from near angle of cell ;	Fore wing with veins 3 and 5 from near angle of cell ;
6 from upper angle ;	6 from upper angle ;
9 from 10 anastomosing with 8 to form the areole ;	9 from 10 anastomosing with 8 to form the areole ;
11 from cell.	11 from cell.
Hind wing with veins 3, 4 from angle of cell ;	Hind wing with veins 3, 4 from angle of cell ;
5 obsolescent from middle of dis- cocellulars ;	5 obsolescent from just below mid- dle of discocellulars ;
6, 7 from upper angle or shortly stalked ;	6, 7 from upper angle ;
8 anastomosing with the cell near base only.	8 anastomosing with the cell near base only.

Absolutely the only differences here given are the slight points in differences of vestiture and even these are more matters of words than of facts. The abdominal tuftings as between *gussata* and *negussa* are exactly identical at base and laterally ; but there is only one distinct dorsal crest in *gussata*. The thoracic tuftings and the vestiture are so nearly alike that I can see no differences. In *plicata* which is cited as a synonym of *negussa*, the second abdominal segment has a very small crest, the other segments have none.

Comparing the ♂ genitalia on mounted slides I find an identity of type in the three species, and only small differences of detail between them. Now identity of type, if the type is a simple or generalized one does not mean very much ; but where the type is specialized and characteristic, it means a great deal, and any classification that separates such very similar forms as *gussata* and *negussa* by several

genera and nearly 300 species, is at least not ideal. Personally I prefer to keep them closely associated in one genus.

The genus *Eriopyga* Gn., is another large aggregation, containing over 200 species, and includes many of our *Tæniocampa*, *Orthodes*, *Pseudorthodes* and *Himella*.

Eriopyga melanopis Hampsn., is the species that I had identified as *perforata* Grt., erroneously as it proves from an examination of the type.

E. orobia Harv., which I had considered as a variety or form of *oviduca*, is here recognized as a good species, and that may be right. The species in this series are much more closely allied than I had believed, and *orobia* looks like an obscure *melanopis* without the contrasting stigma.

Eriopyga planalis and *agrotiformis* Grt., are closely allied and will prove sexes of one species, I think. *Planalis* is the male, *agrotiformis* the female.

Eriopyga consopita Gr., is separated from *culea* Gn., to which I had referred it as a synonym. It is the reddish form in which the median lines are almost lost, and with only two examples of each at hand and these the extremes, they seem distinct enough; but I have an equally red form from Long Island, and have seen almost immaculate forms of the creamy type. I am still of the opinion that the two are specifically identical.

Orthodes nimia Gn., is referred to *Eriopyga cynica* Gn., instead of to *vecors* Gn., and that is correct.

Eriopyga (Agrotis) conar Strck., has *Himella quadristigmalis* Sm., as a synonym, and that is correct: I had previously made the reference in my check list. A specimen of *Himella infidelis* Dyar, sent in by the describer, is the same species. Both *contrahens* and *conar* vary similarly. My species was the well marked form with almost uniform ground color; Dr. Dyar described the other extreme with mottled smoky wings and less contrasting maculation. Hampson, by the bye, makes this reference in his addenda.

Eriopyga affurata Hampsn., is proposed for the species that I had considered identical with the eastern *furfurata*, and this error of mine had been previously recognized by Dyar who named the same form *communis*: a fact also noted by Hampson in the addenda.

Nephelodes Gn., contains only our species; but for the common form the name *emmedonia* Cram., replaces *minians* Gn. This is

probably correct. The synonymy is changed in that *Monosca subnotata* Wlk., is added and *sobria* Wlk., is removed. *Graphiphora sobria* Wlk., is really not a hairy-eyed form at all and is the same as *Mamestra inducta* Wlk., which I had referred to *Carneades messoria*. Hampson has referred the names to *Copitarsia turbata* H.-S., and in this I believe he is right. That species is Central and South American.

Trichopolia Grt., receives as an addition *Lathosea ursina* Sm.,—an addition which I think would not have been made had Hampson compared the other species, both of which were autoptically unknown to him.

Stretchia Hy. Edw., is confined to *muricina*, *plusiæformis*, *variabilis* and *inferior*, with the Japanese *saxea* added.

In *Morrisonia* Grt., there is quite a change in the synonymy. *Xylina multifaria* Wlk., appears under *mucens* as a synonym, instead of under *confusa*, where I placed it. It is a ♀ and comes from the same locality as *spoliata* Wlk., which is a ♂ and which I referred to *mucens*. A reëxamination leaves me in such doubt that I would probably have made the same determination again; but in view of the facts above stated, I accept Hampson's conclusions as probably correct.

M. sectilis Gn., is separated from *evicta-vomerina* with which I had associated it, and that is correct; but with it is placed *rileyana* Sm., which I do not believe right. *Sectilis* is larger, redder, and the secondaries are smoky, while in my species they are nearly white. The type has been reset and would hardly be called a poor specimen at the present time.

Morrisonia peracuta Morr., which has not been known from other than the types and has never had a definite locality, is now referred as a synonym of *Persectania evingi* Westw., from Australasia, and with apparent justice.

Xylomania Hampson is a new genus for a combination of species, some of them heretofore referred to *Stretchia*, some to *Taniocampa*, but most of them to *Xylomiges*.

Xylomania alternans Wlk., replaces *Xylomiges tabulata* Grt., and about this I am doubtful. The Grote type is like what I have always had under his name: the Walker types are much brighter, redder examples, much more xyliniiform in appearance and I do not consider a good species excluded. There is no definite locality to the Walker species.

Perigrapha Led., is enlarged in scope to include species with

simple antennæ in the female, and includes a number of species which we have under *Stretchia*, and some that are under *Tæniocampa*. There is no change in the synonymy.

Monima Hbn., contains those of our *Tæniocampa* that have the general appearance and wing form of *alia*. *M. subterminata* Sm., is made a synonym of *revicta* Morr., and that is correct.

Perigonica remains as in our lists and has no foreign additions.

Sideridis Hbn., replaces *Crocigrapha* Grt., and *Mamestra rosea*, *congermana* and *rubefacta* are added to *normani*. Here again I must dissent from the association. *C. normani* differs so much from *rosea* in wing form and in certain structural peculiarities of the ♂ that except in a purely artificial arrangement they should not be closely associated.

Mamestra vindemialis Gn., is referred to *Physetica* Meyr., and Hampson comments as follows: "The type has the abdomen of a male of some other species stuck onto it, and will probably prove to be from New Zealand." It will be safe, I think, to drop the name from our lists hereafter.

Ceramica Gn., is restored as a good genus with *picta* Harr., as sole species, and that is perhaps a satisfactory disposition of the matter.

Cirphis Wlk., is used for *Leucania* as it stands in our lists. *C. eboriosa* Gn. (not *ebriosa*) and *C. obusta* Gn., which have figured as American insects for so long a time are now referred to Tasmania, and thus satisfactorily disposed of. To *L. multilinea* Wlk., *solita* Wlk., is added as a synonym, and apparently with justice. *L. heterodoxa* Sm., is made a synonym of *insueta* Gn., although they are quite unlike and the genitalic characters of the ♂ are obviously different. *L. megadia* Sm., is made to equal *dia* Grt., and that may prove to be correct.

Leucania subpunctata Harv., is referred as a synonym to *C. latiuscula* H. Sch., in company with half a dozen others and this seems to be correct. The species extends through Central and South America and into the West Indies. It is somewhat variable and has been described for the different faunas.

Mamestra 4-annulata Morr., finds a place in this genus and this seems scarcely justified. There is one poor example in the Museum which is correctly determined; a second example is much better; but seems to me to represent quite a different species. I believe the association with *Mamestra* much better than with *Leucania*.

Borolia Moore, is made to apply to our smaller, whiter species of

Leucania. *Borolia linita* Gn., with *scirpicola* and *amydalina* as synonyms, is separated from *extincta* Gn., which latter is made to equal *ligata* Grt., and this is correct. My original reference of *linita* to *extincta* was based on an insufficient knowledge of our species. *Leucania texana* Morr., is referred as a synonym, or rather a white aberration to *extincta*, and I am willing to accept this as correct. *L. rimosa* Grt., is cited to *B. flabilis* Grt., and looks correct. The material in this series is decidedly scanty and the relation of the forms to each other is uncertain. The B. M. *flabilis* is rubbed and not so good as the Tepper example. The species is taken at Anglesea, N. J., and I fully expect *rimosa*, *flabilis* and *ligata* to prove the same.

Meliana Curt., is used to apply to yet another series of *Leucania* and to include my species of *Neleucania*; but here again I do not agree with Hampson's association. I know the type of *Meliana*, i. e., *flammea*, and consider it generically distinct from the species of *Leucania* here referred to it, and even more obviously different from the species that I call *Neleucania*.

M. albilinea Hbn., receives a long series of synonyms including species with white and with black secondaries. It is sufficient to say on that point that all the separations made by me in 1902 have been abundantly confirmed by additional material and that new points of difference have developed. The British Museum collection contains what would ordinarily be considered a good series, ranging in locality from Nova Scotia to Argentina; but there are only a few, sometimes one or two examples from each locality, and that is not enough to determine the validity of species in this series.

Leucania Ochs., is restricted to forms allied to *pallens*, which is made the type of the genus.

Under *Leucania pallens* we find *luteopallens* Sm., and *pertracta* Morr. The latter may be correct, if Mr. Morrison's species is, as I suspect, based on a European specimen. As to the distinctness of the American form I have already written at sufficient length, and need only repeat that an abundance of additional material has not suggested the necessity for any change of opinion on my part.

Here ends Volume V of the Catalogue which is the second relating to Noctuidæ. It is an enormous piece of work as a whole. I have recorded a good many disagreements; but these are based largely upon a different conception of the value of characters for generic divisions. Sir George Hampson has placed lepidopterists under an obligation

whose extent is not easy to estimate save for him who has to deal with the species, and he has made it possible to recognize the species treated. I do not expect to follow the work in its generic divisions or in accepting his generic types; but that does not lessen the value of the work to any one, while to one who thinks as Hampson does in the matter of generic types and characters, the work is simply indispensable.

Class I, HEXAPODA.

Order VI, TRICHOPTERA.

Order XIV, CORRODENTIA.

NEW TRICHOPTERA AND PSOCIDÆ.

BY NATHAN BANKS,

FALLS CHURCH, VA.

The following descriptions of six caddice-flies and six Psocidæ are the last that I shall publish before the appearance of my catalogue of our Neuropteroid insects.

Order TRICHOPTERA.

Holocentropus flavicornis, new species.

Vertex with a large patch of long white hair, and a tuft of dark rich brown hair each side; antennæ and palpi pale yellow; thorax white-haired in the middle and a brown stripe each side; abdomen brown, tips of segments above, pale; appendages yellowish; legs pale yellow, the hind tibiæ with many long hairs, the anterior tarsi somewhat dusky on the outer side. Wings brown, densely mottled with whitish or pale yellowish, the costal area before end of subcosta with three large dark spots, apical fringe alternately brown and pale; venation brown, with four whitish hyaline cross-veins; the arculus, that connecting cubitus to median, that between forks of median, and that from median to radial sector. Hind wings gray, with brown venation, and gray fringe. Expanse 12 mm.

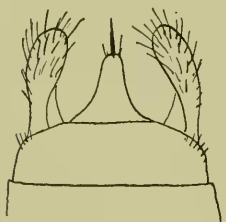


FIG. 1.

Several from Washington, D. C., High Island and Plummer's Island, Md.; June 23 to September. Fork 1 is present in the hind wings, as in *Plectrocnemia*; but its small size and general appearance is more like *Holocentropus*.